

CLIMATOLOGICAL DATA FOR OCTOBER, 1912.

DISTRICT No. 5, UPPER MISSISSIPPI VALLEY.

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GENERAL SUMMARY.

Over much of the upper Mississippi Valley, October, 1912, was an almost ideal autumnal month. There was an abundance of clear, warm weather, and many days, especially during the latter half of the month, were characteristic of the proverbial Indian summer. At Des Moines, Iowa, uninterrupted sunshine prevailed on 19 days and the eight-day period beginning on the 12th was practically cloudless.

The temperature averaged higher than usual in all parts of the district, but no very warm weather occurred except on or about the 5th, when at some stations October records for the last several years were broken. While the precipitation was greater than the normal at about half the stations, there were fewer rainy days than usual at those stations owing to the comparatively heavy character of most of the rains.

In the North Dakota area conditions were not so favorable as elsewhere. A general snowstorm on the 28th-29th caused a cessation of thrashing operations, and at the close of the month that work was far behind the usual schedule. In the corn-growing sections the weather was exceptionally favorable for drying out the crop. That part of the district not visited by destructive frost in September, including only the more easterly and southerly portions, experienced this phenomenon on the 23d or 24th.

TEMPERATURE.

The mean temperature for the district was 50.7° , or 1.2° higher than the normal, while the excess was general; only a few stations reported the average as more than 3° higher than the normal. The means decreased regularly toward the north. Cairo, Ill., at the extreme southern tip of the district, had an average temperature of 62° , while Hannah, N. Dak., near the international boundary, reported an average of 39.3° , these stations being the warmest and coolest, respectively.

Except at a few stations in the North Dakota area all the monthly highest temperatures occurred within the first six-day period. A large majority of the stations experienced a temperature of 80° or higher at that time, and 90° was reached or exceeded at 17 stations. The highest reported was 96° , at Louisiana, Mo., on the 3d. The second warm period of importance culminated in southern sections about the 28th, and it was both preceded and followed by cool spells. The latter was the more intense and did not attain its greatest severity in this district until after the close of the month. The lowest temperature reported was 10° , at Wahpeton, N. Dak., on the 26th, and at Detroit, Minn., on the 30th.

PRECIPITATION.

The average precipitation for the district was 2.44 inches, or 0.44 inch greater than the normal. In general the amounts showed an excess in the south and a deficiency in the north. The month was wettest in northern Illinois, where at several stations upward of 5 inches were recorded; Tiskilwa, with 6.55 inches, being the

heaviest. Over large areas in Minnesota and North Dakota the precipitation was less than half an inch, and at Milnor, in the last-named State, a measurable quantity did not occur.

The precipitation periods of the month were fairly well defined, especially in the southern part of the district, the principal ones being those covering the 3d, 8th-11th, 18th, 21st-22d and 28th-31st. But few stations reported more than 9 rainy days and the average for all stations was but 6.

Damage to property caused by severe thunderstorms occurred in a few instances, but as a rule it was only nominal. An 11-year old boy was killed by lightning on the 10th near Shelbyville, Ill.

Snow: On the 28th-29th there was a general snow-storm in the North Dakota area and in northern Minnesota. The average depth in the first-named section was 2.8 inches. Scattered traces occurred as far southward as Hannibal, Mo., on the 31st.

The following table presents in condensed form the leading features of climatological interest for the various parts of the district:

Parts of States within District No. 5.	Temperature.				Precipitation.				Average number of days with precipitation.
	Mean.	Departure.	Highest.	Lowest.	Average.	Departure.	Greatest total.	Least total.	
North Dakota....	44.1	+ 1.1	90	10	0.89	- 0.06	2.10	T.	2.8
Minnesota.....	47.6	+ 1.7	90	10	0.99	- 1.20	3.07	0.11	0.2
South Dakota....	47.3	- 0.4	89	19	0.49	- 1.42	0.60	0.38	T.
Wisconsin.....	48.9	+ 1.4	86	12	2.13	- 0.58	4.83	1.00	T.
Iowa.....	52.2	+ 0.7	92	19	3.17	+ 0.55	5.77	1.03	T.
Missouri.....	57.4	+ 1.2	96	25	4.55	+ 2.04	6.25	3.05	T.
Indiana.....	53.7	+ 0.2	86	25	2.48	+ 0.22	3.04	1.84	0
Illinois.....	55.7	+ 1.6	91	22	3.73	+ 1.45	6.55	0.74	T.

RIVERS.

But little of interest occurred in connection with river conditions. The middle Mississippi remained at a moderately low stage throughout the month and at the close was somewhat lower than at the end of September; but there still was abundant water for boating purposes. Through navigation had been suspended, however, in order that the work on the Keokuk dam might be expedited.

MISCELLANEOUS.

In most of the district the amount of sunshine was much above the normal. Over the southern two-thirds the average was more than 70 per cent of the possible, the month being one of the brightest Octobers on record. The average number of clear days was 19; partly cloudy, 5; cloudy, 7. Southwesterly winds prevailed, but a large number of stations reported the prevailing direction as either southerly or northwesterly. The highest velocity for a five-minute period was at the rate of 55 miles an hour, from the west, at St. Paul, Minn., on the 29th.

TABLE 1.—Climatological data for October, 1912. District No. 5, Upper Mississippi Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.			
				Mean.	Departure from the normal.			Highest.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmetalled.	Number of rainy days, 0.01 inch or more.					
					Date.	Lowest.	Greatest daily range.														
North Dakota.																					
Amenia.	Cass.	954	15	47.0	+ 2.7	82*	5	14	52*	0.02	- 1.41	0.02	0.2	1	21	2	8	nw.	C. E. Wood.		
Bottineau.	Bottineau.	1,638	17	41.9	+ 1.1	78	1†	18	31	46	1.54	+ 0.39	1.31	5	9	11	11	nw.	W. M. Mills.		
Bowbells.	Burke.	1,958																	G. H. Phelps.		
Cando.	Towner.	1,488	11	44.6	+ 1.8	85†	16	12†	31	53*	1.44	+ 1.09	0.66	3					E. T. Judd.		
Crosby.	Divide.			42.3		78	1	21	20†	46	1.17		0.68	0.2	3	18	8	5	nw.		
Devils Lake.	Ramsey.	1,482	7	43.4	+ 2.9	78	4	17	31	37	1.38	+ 0.15	0.62	4.5	7	10	11	10	w.		
Donnybrook.	Ward.	1,760	13	43.0	- 0.3	80*	1	21†	20	47*	1.95	+ 1.54	1.06	8.0	6	13	10	8	U. S. Weather Bureau.		
Dunseith.	Rolette.	15	41.0	- 1.2	76*	5	17*	31	45*	0.51	- 0.16	0.21	3.3	5					C. J. De Vore.		
Edmore.	Ramsey.	1,524	7																C. E. Goodsell.		
Fessenden.	Wells.	1,610		43.2		85	1	15	22	55	0.89		0.52	3.0	4	18	6	7	nw.		
Forman.	Sargent.	1,249	18	45.3	+ 0.4	88	4	11	30†	47	1.03	+ 1.49	0.02	0	2	14	6	11	A. Maltby.		
Grafton.	Walsh.	827	21	43.4	+ 0.3	78*	4	16†	22	43*	1.34	+ 0.30	0.60	1.3	6				A. R. T. Wylie.		
Granville.	McHenry.	1,504	6	40.6		78	1	14	22	54	1.49		1.07	6.0	5	22	1	8	W. A. Christianson.		
Hannah.	Cavalier.	1,568	7	39.3		72*	16	13*	30	41*	1.47		0.50	11.2	6				J. Moffatt.		
Hansboro.	Towner.			42.3		80	4	15	31	47	0.53		0.28	3.2	4	19	3	9	Geo. Dale.		
Hillsboro.	Trail.	901	7	46.2		78	4	17	30	41	1.49		0.37	T.	3	15	6	10	F. E. Mayall.		
Lakota.	Nelson.	1,579	6	42.6		75*	16	12*	30	48*	1.23		0.40	8.5	6				C. R. Pettes.		
Langdon.	Cavalier.	1,615	17															J. Woolner.			
Larimore.	Grand Forks.	1,134	17	42.6	- 1.6	78	16	17	22	36	0.66	- 0.66	0.58	3	19	8	4	n.	J. M. Freeman.		
Lisbon.	Ransom.	1,091	8	46.4	+ 1.4	84	4†	14	22†	58	0.46	- 0.90	0.36	0	2	20	4	7	nw.	W. S. Adams.	
McKinney.	Renville.	1,640	18	44.9*	+ 3.3	84*	1	21†	19	54*	1.45	+ 0.78	0.60	4.0	4				N. P. Swenson.		
McLeod.	Wells.	1,605	11	44.0		75	1†	17	22	42	1.47		0.04	T.	3	14	11	6	nw.	Martin Reinholdt.	
Manfred.	Mayville.	975	16	47.0	+ 1.9	80	16	16	22	42	0.10	- 1.38	0.70	7.0	5	15	9	7	nw.	P. B. Anderson.	
Milnor.	Sargent.	1,097											T.	0	1	17	6	8	nw.	W. C. Gould.	
Minot.	Ward.	1,557	14	45.6*	+ 1.0	82*	2	22	19†	44*	2.10	+ 1.29	1.20	7	18	3	10	10	n.	H. H. Edman.	
Minto.	Walsh.	820	19	45.4	+ 3.2	76	4†	16	22	41	1.34	+ 0.16	0.36	T.	6	15	12	4	nw.	W. J. Ellison.	
Oriska.	Barnes.	1,270	7	45.9		81	4	15	22	47	0.12		0.08	T.	3	17	7	7	sw.	S. S. Marsh.	
Park River.	Walsh.	998	9	45.9		77	4†	18	30	46	1.64		0.60	T.	5	13	7	11	nw.	J. J. Taylor.	
Pembina.	Pembina.	789	14	41.5	- 0.3	68	1	21	31	42	1.06	+ 0.02	0.22	2.0	9	14	10	7	sw.	P. J. Prochaska.	
Power.	Richland.	1,020	20	45.6	+ 0.6	84	4	14	30	46	0.18	- 1.52	0.10	1.0	2	20	5	6	nw.	C. W. Shumaker.	
Pratt.	McHenry.	7																	J. A. Power.		
Towner.	do.	4	44.7			81	4	16	31	46	1.28		0.50	8.0	3	15	9	7	nw.	W. B. Ahern.	
University.	Grand Forks.	830	20	45.4	+ 1.7	79	10	17	30	40	0.29	- 1.15	0.14	0.2	5	15	4	12	s.	B. Bagley.	
Wahpeton.	Richland.	962	20	48.4	+ 1.2	90*	5	10	26	57*	0.33	- 1.39	0.30	T.	3	21	3	7	nw.	U. S. Weather Bureau.	
Walhalla.	Pembina.	966	8																Fred E. Smith.		
Westhope.	Bottineau.			44.0		83	1	20	19†	50	0.89		0.40	4.0	4	13	14	4	nw.	Ivanhoe Lee.	
Willow City.	do.	1,471	19	42.8	+ 0.6	80	4	15	22	53	0.69	+ 0.15	0.40	4.0	4	5	18	8	w.	W. A. Meddaugh.	
Minnesota.																			M. A. Ostby.		
Albert Lea.	Freeborn.	1,229	21	50.5	+ 2.3	85	5	22	30	37	1.90	- 0.35	1.00	T.	5	18	8	5	nw.	Edward Carey.	
Alexandria.	Douglas.	1,391	18																P. O. Unamb.		
Angus.	Polk.	870	10	44.0	+ 1.0	79	4	15	30	42	0.31		0.10	0.5	4	13	7	11	s.	John Nadovnik.	
Bagley.	Clearwater.			6	44.4	79	4	17	30	45	0.51		0.30	0.5	3	14	8	9	sw.	Jens Nelson.	
Beaudette.	Beltrami.	1,084																	C. S. Dahlquist.		
Beardsley.	Bigstone.	1,090	16	50.5	+ 3.4	90	5	18	30	50	0.22	- 1.67	0.11	0	3	15	11	5	nw.	G. L. Fitzgerald.	
Beaufield.	Mahnomen.	1,200	9																Dr. P. A. Slattery.		
Bemidji.	Beltrami.	1,400	9																C. W. Warfield.		
Bird Island.	Renville.	1,039	22	50.8	+ 2.9	90	5	16	30	43	1.13	- 0.83	0.88	T.	3	15	13	3	sw.	Dr. F. L. Puffer.	
Brainerd.	Crow Wing.	1,215	5																Theodore Miller.		
Caledonia.	Houston.	1,179	19	48.9	+ 0.3	78	5	27	23	31	0.75	- 1.96	0.45	0	4	17	6	8	sw.	W. D. Belden.	
Campbell.	Wilkin.	984	6	45.6		86	3†	15	30	46	0.81		0.65	T.	3	17	1	13	sc.	J. T. Neiss.	
Cass Lake.	Cass.	1,300	5																C. W. Burns.		
Collegeville.	Chesters.	1,282	19	50.0	+ 2.2	83	5	20	30	38	0.72	- 1.24	0.66	0	2	20	4	7	s.	F. Tremblett.	
Crookston.	Polk.	863	23	44.0	+ 0.1	75	4	20	30	36	0.42	- 1.24	0.28	0.5	3	16	5	10	s.	A. G. Andersen.	
Detroit.	Becker.	1,364	16	44.3	+ 0.4	80	5	10	30	45	0.63	- 1.46	0.35	0.3	3	23	3	5	sw.	G. W. Peoples.	
Ely.	St. Louis.	1		48.1		82	5	22	23	44	0.85		0.44	0.8	5	16	7	8	w.	Iver Wisted.	
Fairmont (near).	Martin.	1,240	25	50.5	+ 2.7	83	5	22	30	33	1.35	- 0.50	1.12	0	4	20	5	6	s.	W. F. Wherland.	
Faribault.	Rice.	1,003	14																Alice Chambers.		
Farmington.	Dakota.	902	24	51.0	+ 3.3	87	5	18	30	43	1.40	- 1.41	0.85	T.	4	19	3	9	s.	E. D. Akin.	
Fergus Falls.	Otter Tail.	1,210	20	47.8	+ 1.6	79	5	18	30	35	0.63	- 1.03	0.40	0.2	8	18	4	9	se.	C. E. Kissinger.	
Fort Ripley.	Crow Wing.	1,136	4	47.2		84	5	14	31	51	0.52	- 1.02	0.40	T.	2	13	0	18	s.	J. J. Tucker.	
Fosston.	Polk.	1,289	2	45.2		79	4	14	30	39	0.48		0.20	2.0	1	15	9	7	nw.	O. N. Hem.	
Glencoe.	McLeod.	1,000	15			85	5	20	30	36	2.60	- 0.08	1.74	0	1	19b	8 ^b	2 ^b	s.	F. B. Reed.	
Grand Meadow.	Mower.	1,338	24	49.0	+ 2.1	82	5	20	30	36	0.83		0.45	T.	8	22	1	8	s.	C. F. Greening.	
Gull Lake Dam.	Cass.	1,215	11	47.8		82	5	20	30	40	0.83		0.45	T.	8	18	4	9	nw.	U. S. Engineer Corps.	
Hallock.	Kittson.	815	13	44.2	+ 0.4	78	4	19	22	39	0.37	+ 1.84	0.85	1.0	7	15	2	14	n.	D. A. Robertson.	
Halstad.	Norman.	870	6	43.4		79	4	14	30	50	0.11		0.07	0.2	3	19	3	9	w.	A. G. Holstrom.	
Hinckley.	Pine.	1,050	7	47.1		83*	5	18	31	45	0.55		0.55	0	1	11*	8 ^a	11 ^a	ne.	W. R. Newman.	
International Falls.	Koochiching.	1,112	9	46.6		87	2	21	29†	46	2.06		0.69	0	7	17	3	11	w.	C. Ardies.	
Itasca State Park.	Clearwater.	1,500	1	49.8		89	2	22	25	52	0.69		0.33	0							

TABLE 1.—Climatological data for October, 1912. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years	Temperature, in degrees Fahrenheit.					Precipitation, in inches.					Sky.	Prevailing wind direction.	Observers.					
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmeted.							
Minnesota—Contd.																					
Redwood Falls.	Redwood.	1,050	5								2.21	-1.41	1.75	0	4	21	0	10	nw.		
Reeds Landing.	Wabasha.	681	16								0.93	0.61	0	3	19	2	10	nw.	John Deschneau.		
Rochester.	Olmstead.	991	7	48.4		87	5	21	23	48	2.1	1.41	1.75	0	4	21	0	10	nw.	Mary P. Cram.	
Roseau.	Roseau.	1,040	3	42.6		80	4	14	22	43	1.84	0.40	1.0	0	9	21	2	8	s.	M. J. Hegland.	
St. Charles.	Winona.	850	21	49.6	+ 1.6	82	5	21	31	40	1.70	-1.37	1.43	0	2	22	1	8	n.	S. W. Gleason.	
St. Cloud.	Sherburne.	1,020	35	50.6	+ 0.9	85	5	21	30	39	0.68	-1.94	0.62	0	3	25	3	3	s.	J. H. Capser.	
St. Paul.	Ramsey.	940	41	50.4	+ 2.3	85	5	23	30	35	1.18	-1.16	0.91	0	5	17	8	6	s.	U. S. Weather Bureau.	
St. Peter.	Nicollet.	825	17	49.0	-0.7	84	5	21	30	40	1.14	-1.49	0.66	0	3	18	8	5	s.	State Hospital.	
Sandy Lake Dam.	Aitkin.	1,234	19	46.4	+ 2.0	80	5	20	25	41	0.63	-1.47	0.30	0	3	10	12	5	se.	U. S. Engineer Corps.	
State Sanatorium.	Cass.	4	47.2			78	5†	21	30†	43	0.61		0.50	0	2	17	3	11	w.	Dr. L. B. Ohlinger.	
Stillwater.	Washington.	694	6								1.12		1.12	0	1	17	3	11	s.	Oscar Ostrom.	
Taylors Falls.	Chisago.	759	5	49.0		84	5†	21	30†	45	1.46		0.85	0	5	21	1	9	s.	Minneapolis General Electric Co.	
Thief River Falls.	Pennington.	1,137	1	44.8		80	4	19	22†	36	0.96		0.75	2.0	4	13	7	11	s.	E. W. Lown.	
Tracy.	Lyon.		1																	E. D. Davis.	
Warren.	Marshall.	859	1	45.8		86	4	19	22†	45	0.73		0.33	3.0	3	15	11	5		P. H. Holm.	
Warroad.	Roseau.	1,069	2	39.4		70	4†	18	21	44	1.44		0.57	2.0	5	12	10	9	w.	G. A. Sawyer.	
Winnebago.	Faribault.	1,100	14	50.7	+ 0.9	87	5	21	30	40	1.20	-1.39	1.00	0	3	17	7	7	sw.	H. H. Haight.	
Winnibigoshish.	Itasca.	1,300	24	46.7	+ 3.1	78	5	24	25†	45	0.88	-1.02	0.54	T.	7	18	2	11	nw.	U. S. Engineer Corps.	
Winona.	700	16	51.8	+ 3.7	87	5	25	31	38	1.80	-0.43	0.95	0	5	21	1	9	sw.	P. C. Meyers.		
Worthington.	Nobles.	1,593	17	47.0	-1.1	80	5	15	30	35	1.33	-0.90	0.94	0	3	20	4	7	s.	M. P. Mann.	
Zumbrota.	Goodhue.	917	16	49.8	+ 1.5	82	5	20	31	40	1.61		0.95	T.	3	21	5	5	nw.	W. C. Rowell.	
South Dakota.																					
Milbank.	Grant.	1,148	21	47.2	-0.4	89	5	19	30	47	0.38	-1.42	0.17	T.	4	19	5	7	w.	Mary E. Partridge.	
Sisseton.	Roberts.	1,202	6	47.4		75†	2	20	30	36*	0.60		0.60	T.	0	1	20	0	11	s.	George Gray.
Wisconsin.																					
Antigo.	Langlade.	1,489	18	47.5	+ 2.2	78	5	20	31	34	1.81		1.16	0	4	20	0	11	w.	Elton C. Larzelere.	
Barron.	Barron.	1,115	21	47.7	+ 2.0	81	5	19	31	43	2.59	-0.25	1.80	T.	4	19	6	6	w.	Wm. A. Kent.	
Beloit.	Rock.	750	46	50.5	-0.3	80	6	26	24	41	3.31	+ 1.23	1.09	0	6	22	0	9	sw.	Smith Observatory.	
Big St. Germain Dam.	Vilas.	1,590	2	45.4		82	5	16	31	50	1.88		1.45	0	6	17	7	7	s.	Fred Hessen.	
Brodhead.	Green.	812	14	51.9	-0.1	83	6	23	24	39	3.37	+ 1.30	1.15	0	5	20	5	6	sw.	Hector D. Kirkpatrick.	
Burnett.	Dodge.	880	8	50.0*		79	6	24	24	35	1.94		0.67	0	6	16†	7	6	sw.	Geo. W. Smith.	
Cornell.	Chippewa.	993	0	*																Brunet Falls Mfg. Co.	
Cottage Grove.	Dane.	888	1																	John E. Mellish.	
Darlington.	Lafayette.	867	6	50.8		85	6	28	30	41	4.41		1.60	0	7	17	7	7	se.	F. J. O'Neill.	
Deerskin Dam.	Forest.	1,685	2	45.2		85	6	15	31	55	2.42		1.85	T.	4	12	13	6	w.	Wm. E. O'Neal.	
Delavan.	Walworth.	920	21	51.2	+ 3.0	82	6	23	24	37	4.12	+ 2.35	1.44	0	7	19	3	9	sw.	Elwood S. Austin.	
Dodgeville.	Iowa.	1,220	12	51.7	0.0	80	5	23	23	38	2.54	+ 0.51	0.80	0	5	23	1	7	sw.	Thomas Gibson.	
Downing.	Dunn.	983	10	48.4	+ 1.7	84	5	17	32	40	2.00	-1.44	1.40	0	2	13	0	18	w.	Eugene F. Stoddard.	
Eau Claire.	Eau Claire.	800	21	49.6	+ 1.0	83	5	22	23†	39	2.17	-1.05	0.81	T.	6	17	8	6	se.	Robert D. Whitford.	
Glen Flora.	Rusk.	1,475	0	46.4*		83*	5	17*	23	42*	2.06		1.08	0	6	21	2	8	sw.	F. W. Oelschlaeger.	
Grand Rapids.	Wood.	1,021	13	47.8*	+ 0.9	78*	5	21*	23	42*	1.35	-0.50	0.89	0	6	20	4	7	sw.	Willis B. Raymond.	
Grantsburg.	Burnett.	1,095	21	48.8	+ 2.0	84	5	18	31	44	1.22	-1.24	0.55	T.	4	19	6	6	sw.	Theodore Olsen.	
Hancock.	Waushara.	1,091	20	49.8	+ 1.4	79	6	22	23	34	1.50	-0.71	0.38	0	7	19	4	8	sw.	Frederick B. Hamilton.	
Hathfield.	Jackson.	973	15	48.2*	-0.1	85*	5	16*	23	46*	1.26	-1.81	1.00	0	3	15*	4	10*	sw.	Walter S. Woods.	
Hayward.	Sawyer.	1,107	21																	Emil V. Swain.	
Hillsboro.	Vernon.	1,000	21	48.0	+ 0.2	81	5	18	24†	44	1.98	-0.38	0.90	0	4	18	10	3	sw.	Frank Evans.	
Koepnick.	Langlade.	1,683	21	48.4	+ 2.6	78	5	18	24†	40	1.34	-1.83	0.30	0	6					Eugene L. Hitchcock.	
Lac du Flambeau.	Vilas.	2																		Charles H. Johnson.	
La Crosse.	La Crosse.	714	40	50.8	+ 0.9	83	5	25	23	35	1.03	-1.42	0.82	0	7	19	2	10	sw.	Wm. Zeit.	
Lake Mills.	Jefferson.	897	21	50.4	+ 0.7	82	6	28	24	33	4.68	+ 2.51	1.66	0	9	19	6	6	sw.	Wm. T. Hunter.	
Lancaster.	Grant.	1,070	21	53.0*	+ 3.5	82*	5	25	23	33*	2.58	+ 0.52	0.98	0	5	12*	10*	7	sw.	Benjamin W. Applebee.	
Long Lake.	Oneida.	1,592	4	45.0		84	5	12	31	49	1.53		1.12	0	7	15	9	9	sw.	Dr. Charles Hebard.	
Madison.	Dane.	974	43	51.2	+ 2.4	79	5	29	24	32	2.49	+ 0.07	1.04	0	7	18	4	9	sw.	W. M. Lewis.	
Marshfield.	Wood.	1,276	0																	Wm. Hessler.	
Mather.	Juneau.	902	8	46.8		80	5	19	23	42	1.40		1.00	0	5	17	3	11	w.	Wm. Heaslett.	
Mauiston.	882	16	49.6	+ 0.7	78	5	24	33	40	2.00	-0.49	0.86	0	6	21	3	7	sw.	Franc A. R. Van Meter.		
Meadow Valley.	974	21	48.8	+ 0.9	82	5	20	23†	46	1.12	-1.34	0.61	0	6	12	13	6	sw.	Charles W. Staples.		
Medford.	Taylor.	1,420	23	47.2	+ 1.2	79	5	19	23†	36	1.80	-1.61	0.85	0	6	19	6	6	sw.	Flameboat Paper Co.	
Merrill.	Lincoln.	1,267	6	47.1		82	5	20	31	41	2.49		1.25	0	7	20	0	11	s.	Charles H. Johnson.	
Minocqua.	Oneida.	1,604	8	47.2		80	5	20	23†	36	1.91		1.20	T.	9	14	9	8	w.	Wm. Zeit.	
Mondovi.	Buffalo.	738	4	49.4		84	5	21	31	40	1.16		0.64	0	9	23	1	7	sw.	Benjamin W. Applebee.	
Mount Horeb.	Dane.	1,226	8	50.1		80	5	23	23	35	3.29		0.96	T.	7	23	1	7	sw.	Dr. Charles Hebard.	
Muscoad.	Grant.	666	3	49.9		85	5	24	23	46	1.54		0.60	0	6	22	0	9	sw.	W. M. Lewis.	
Neillsville.	Clark.	996	22	49.4	+ 2.5	86	4	20	23†	43	1.30	-1.62	1.10	0	2	17	7	7	sw.	Wm. Hessler.	
New Richmond.	St. Croix.	990	7	49.0		81	5	20	31	43	1.02		0.80	0	5	14	14	3	sw.	Lyman Haskins.	
Osceola.	Polk.	806	21	50.0	+ 3.2	84	5	21	31	41	1.45	-1.50	1.45	0	1	18	11	2	sw.	F. B. Moody.	
Park Falls.	Price.	1,492	21	46.2		84	5	18	23†	42	1.94	-1.32	1.32	T.	8	15	9	7	sw.	Albert D. Hansen.	
Portage.	Columbia.	809	23</td																		

TABLE 1.—Climatological data for October, 1912. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.				Precipitation, in inches.				Number of rainy days 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direc- tion.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unfilled.					
<i>Iowa.</i>																			
Albia.	Monroe.	959	14	54.4	+ 1.2	91	5	26	23†	41	2.74	+ 0.17	1.07	0	9	19	3	sw.	J. I. Chenoweth.
Algoma.	Kossuth.	1,213	35	51.0	+ 2.3	84	5	25	30	34	2.50	+ 0.41	2.50	0	2	24	2	nw.	Dr. F. T. Seeley.
Alta.	Buena Vista.	1,513	21	50.2	- 0.1	85	5	25	30	39	1.34	- 0.80	1.03	0	6	21	5	s.	David E. Hadden.
Amana.	Iowa.	721	36	52.2	+ 2.3	83	5	24	23	35	2.57	- 0.08	1.27	0	7	19	4	s.	C. Schadt.
Ames.	Story.	926	36	52.0	+ 1.0	86	5	24	23	38	4.26	+ 1.79	1.84	0	7	22	2	s.	Iowa State College.
Baxter.	Jasper.	998	12	51.5	- 1.7	85	5	24	30	37	2.28	- 0.53	1.07	T.	9	21	3	sw.	W. R. Vandike.
Belle Plaine.	Benton.	828	22	53.1	+ 2.7	87	5	24	23	39	4.70	+ 2.35	1.56	0	7	19	5	nw.	O. C. Burrows.
Belmond.	Wright.	5	2	50.4	-	85	5	26	31	37	2.22	-	1.28	T.	6	14	10	s.	Geo. P. Hardwick.
Bloomfield.	Davis.	5	56.6	90	5	25	23†	42	5.77	-	-	2.60	T.	6	26	0	nw.	Albert Power.	
Bonaparte.	Van Buren.	21	55.5	+ 0.5	92	6	27	23	37	3.90	+ 2.14	1.54	0	7	-	-	s.	B. R. Vale.	
Boone.	Hancock.	1,134	7	51.0	+ 0.3	84	5	24	31	34	2.52	-	1.17	0	6	18	4	s.	C. F. Henning.
Britt.	Buckingham.	1,236	15	50.6	+ 0.3	86	5	21	30	38	2.65	+ 0.49	1.80	0	6	21	4	nw.	L. M. Goodman.
Burlington.	Tama.	544	16	54.4	- 1.3	88	5†	29	24	44	4.09	+ 1.87	1.50	0	6	24	1	s.	J. S. Gwynn.
Carroll.	Des Moines.	1,265	22	49.4	- 1.6	84	5	28	30	37	4.37	+ 2.13	1.64	0	5	22	1	se.	Max. E. Poppe, jr.
Cedar Rapids.	Carroll.	733	30	52.1	+ 0.7	85	5	28	24	41	2.34	- 0.12	0.97	0	2	20	3	s.	Mrs. J. J. Wolfe.
Charles City.	Floyd.	1,015	21	49.8	+ 1.6	83	5	24	23	37	2.58	+ 0.55	1.39	0	9	17	4	nw.	R. S. Toogood.
Clear Lake.	Cerro Gordo.	1,241	14	53.4	+ 1.6	85	5	22	30	34	1.70	- 0.93	1.40	0	2	23	2	nw.	U. S. Weather Bureau.
Clinton.	Clinton.	593	45	52.4	+ 1.9	84	5†	26	23†	40	4.36	+ 1.96	1.78	0	9	19	5	sw.	Oscar Stevens.
Columbus Junction.	Louisa.	595	11	54.5	+ 0.1	87	6	29	23†	34	4.67	+ 2.22	2.40	0	6	25	0	sw.	A. E. Reid.
Davenport.	Scott.	580	41	54.6	+ 2.0	86	6	31	23	36	4.04	+ 1.65	2.03	0	8	19	4	sw.	J. B. Johnston.
Decorah.	Winneshiek.	875	19	49.8	- 0.4	82	5	21	23	36	1.03	- 1.39	0.47	0	3	-	-	s.	F. H. Baker.
Delaware.	Delaware.	1,083	21	51.6	+ 2.6	82	5	25	23	34	3.42	+ 1.22	1.15	0	8	20	4	nw.	William Ball.
Des Moines.	Polk.	861	34	54.2	+ 1.7	86	5	29	23	33	3.75	+ 1.07	1.36	0	8	21	3	nw.	U. S. Weather Bureau.
Dubuque.	Dubuque.	639	39	52.5	+ 0.5	81	6	30	23	33	3.50	+ 0.82	1.62	0	8	18	5	s.	Do.
Earlham.	Madison.	10	52.9	+ 1.8	86	5	21	23	38	3.29	+ 0.94	1.48	T.	10	22	1	nw.	George Phillips.	
Elkader.	Clayton.	727	33	49.2	- 0.2	84	5	20	23	41	2.22	- 0.42	0.75	0	6	20	2	se.	Chas. Reinecke.
Elma.	Howard.	2	48.8	-	82	5	21	23	40	2.12	-	0.80	0	8	20	5	se.	H. A. Moore.	
Esterville.	Emmet.	1,298	17	49.3	+ 0.5	85	5	20	30	44	1.20	- 0.97	0.65	0	3	23	4	s.	A. O. Peterson.
Fairfield.	Jefferson.	28	54.7	+ 2.3	87	6	27	23	37	3.11	+ 0.19	1.70	0	6	25	0	s.	R. M. McKenzie.	
Fayette.	Fayette.	1,003	29	49.6	+ 2.9	81	5	21	23	35	2.27	- 0.38	0.87	0	6	23	1	nw.	R. Z. Latiner.
Forest City.	Winnebago.	1,226	18	50.0	+ 0.3	86	5	21	31	39	2.67	+ 0.37	1.95	0	3	21	1	s.	J. A. Peters.
Fort Dodge.	Webster.	1,126	12	51.4	- 0.9	88	5	24	30	39	3.66	+ 0.57	1.62	0	8	21	5	s.	J. F. Monk.
Fort Madison.	Lee.	516	63	-	82	5	21	23	40	2.12	-	0.80	0	8	16	7	s.	Miss L. A. McCready.	
Gilmantown.	Marshall.	1,052	13	50.6	+ 1.4	80	5	25	23†	29	2.19	- 0.26	0.74	0	8	17	7	nw.	J. L. Wylie.
Grand Meadow.	Clayton.	1,180	21	50.6	+ 1.4	80	5	28	23	37	2.45	- 0.28	1.56	0	7	20	2	sw.	F. L. Williams.
Grinnell.	Poweshiek.	1,023	20	53.8	+ 3.1	88	5	27	23	38	4.25	+ 2.78	1.01	0	6	22	3	nw.	D. W. Brainard.
Grundy Center.	Grundy.	976	21	53.2	+ 1.4	84	5	25	30	34	2.64	+ 0.17	1.10	0	6	22	3	n.	J. B. Calderwood.
Guthrie Center.	Guthrie.	1,077	17	52.2	- 0.2	84	5	23	31	38	3.37	+ 1.10	1.68	0	9	22	2	nw.	D. G. Beardsley.
Hampton.	Franklin.	1,155	22	53.0	+ 2.2	87	5	25	30	47	3.02	+ 0.59	1.48	0	8	17	7	nw.	E. C. Grenelle.
Humboldt.	Humboldt.	1,095	24	-	82	5	23	23	34	2.43	+ 0.07	0.96	0	9	24	0	s.	R. E. Dudley.	
Independence.	Buchanan.	921	48	51.0	+ 1.8	82	5	23	23	34	2.43	+ 0.07	0.96	0	9	20	2	nw.	Prof. J. L. Tilton.
Indianola.	Warren.	969	21	54.5	+ 0.8	86	5	28	30	31	5.15	+ 3.05	1.81	0	9	20	2	nw.	Prof. A. G. Smith.
Iowa City.	Johnson.	683	52	51.2	+ 0.1	86	6	24	23	45	3.54	+ 0.76	1.53	0	8	21	2	nw.	J. B. Parmelee.
Jefferson.	Greene.	1,170	19	48.8	- 0.9	83	5	23	23	40	2.61	+ 0.46	0.82	0	5	25	0	s.	Ora M. Hall.
Keokuk.	Lee.	547	41	56.2	+ 1.7	89	6	30	23	34	4.47	+ 1.98	1.74	T.	9	21	5	s.	U. S. Weather Bureau.
Kenosauqua.	Van Buren.	644	20	53.8	- 1.0	90	6	24	23†	52	4.00	+ 2.16	1.42	0	7	21	3	s.	J. H. Landos.
Knoxville.	Marion.	920	17	54.6	+ 0.9	86	5	29	23†	36	4.07	+ 1.65	1.85	0	7	21	5	nw.	Casey & Bellville.
Lacona.	Warren.	13	-	-	-	-	-	-	-	-	4.74	+ 2.03	1.88	0	9	-	-	s.	J. B. Alter.
Lansing.	Allamakee.	576	12	-	-	-	-	-	-	-	1.53	-	0.60	0	9	-	-	s.	Chas. R. Serene.
Le Claire.	Scott.	576	15	49.6	- 1.2	81	6	25	23†	41	2.35	+ 0.09	0.94	0	6	21	2	s.	Miss M. T. Disney.
Marshalltown.	Marshall.	947	20	52.2	- 0.1	89	5	23	23	48	4.40	+ 2.02	2.40	T.	7	18	6	nw.	Jacob Eige.
Mason City.	Cerro Gordo.	1,132	15	49.6	0.0	83	5	22	23	37	1.95	- 0.17	1.51	0	4	20	3	nw.	J. S. Mills.
Monroe.	Jasper.	537	7	86	5	25	23	37	4.19	-	1.81	0	7	23	1	s.	J. A. Dibel.		
Mount Pleasant.	Henry.	729	31	53.8	+ 1.3	85	6	28	23	34	4.34	+ 2.48	1.79	0	7	23	3	se.	J. W. Edwards.
Muscatine.	Wappello.	52	-	-	-	-	-	-	-	-	4.74	+ 1.70	1.94	0	7	-	-	s.	William Molis.
New Hampton.	Chickasaw.	1,169	15	49.6	- 1.2	81	6	25	23†	41	2.35	+ 0.09	0.94	0	6	21	2	s.	A. F. Kenman.
Nora Springs.	Floyd.	49.2	26	761	28	22†	23	40	-	-	-	-	-	-	-	-	-	s.	Arthur Betts.
Northwood.	Worth.	1,122	16	47.8	- 1.9	82	5	23	20	35	2.19	- 0.41	1.80	0	4	-	-	s.	Chas. H. Dwelle.
Olin.	Jones.	700	14	52.2	+ 1.0	82	6	24	23	40	3.34	+ 0.93	1.35	0	8	21	6	nw.	Dr. F. W. Port.
Osage.	Mitchell.	1,184	29	50.0	+ 2.6	83	5	24	30	37	2.21	- 0.21	1.53	0	4	22	2	s.	Lester Conradt.
Oskaloosa.	Mahaska.	843	36	53.6	+ 1.5	86	5	22	23	40	2.42	+ 0.22	1.45	0	7	23	1	nw.	Joseph Boyd.
Ottumwa.	Wappello.	649	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	s.	Chester Potter.
Pella.	Marion.	877	10	54.0	+ 0.4	88	5	22	23	41	4.36	+ 1.77	1.84	0	8	24	0	nw.	J. H. Ver Steeg.
Perry.	Dallas.	975	11	52.6	- 1.6	86	5	24	23	40	2.87	+ 0.32	1.33	0	6	21	3	nw.	S. J. Brumfield.
Pocahontas.	Pocahontas.	1,248	8	51.4	-	86	5	20	23	40	1.63	-	0.95	0	5	25	1	nw.	F. E. Hronok.
Ridgeway.	Winneshiek.	1,215	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	s.	Arthur Betts.
Rockwell City.	Calhoun.	16	52.8	+ 0.8	85	5	29	23	35	3.40	+ 0.99	1.75	0	4	22	4	5	se.	C. M. Randall.
Sac City.	Sac.	1,278	36	53.2	+ 3.2	84	5	24	31	34	2.10	- 0.19	1						

TABLE 1.—Climatological data for October, 1912. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.			
				Mean.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Greatest in 24 hours.	Departure from the normal.	Total snowfall, unmeasured.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of over cloudy days.				
<i>Indiana.</i>																					
Collegeville.....	Jasper.....	13	53.2	— 0.8	86	6	25	24	41	2.52	+ 0.55	0.97	0	6	16	7	8	sw.	Otto Miller.		
Knox.....	Starke.....	716	7	54.4	81	6	29	24	32	2.19	—	0.58	0	10	19	5	7	s.	W. R. R. Tatman.		
Laporte.....	Laporte.....	810	16	52.6	— 0.6	82	6	31	24	36	3.04	+ 0.68	0.63	0	11	18	2	11	nw.	Wm. M. Walton, jr.	
Plymouth.....	Marshall.....	790	9	53.0	—	80	6	28	24	34	2.80	—	1.25	0	6	19	5	7	sw.	J. W. Siders.	
South Bend.....	St. Joseph.....	726	19	55.1	+ 2.0	83	6	30	24	32	1.84	—	0.58	0.60	0	12	18	7	6	sw.	Henry H. Swaim.
<i>Illinois.</i>																					
Aledo.....	Mercer.....	738	12	55.3	+ 1.9	85	6	30	23	35	4.71	+ 2.52	1.52	0	8	21	2	8	s.	William B. Frew.	
Alexander.....	Morgan.....	670	19	57.6	+ 1.7	88	6	29	24	39	3.53	+ 1.60	1.47	0	9	18	7	6	sw.	George H. Hall.	
Antioch.....	Lake.....	801	11	51.7	+ 0.4	80	5	25	24	36	5.62	+ 3.48	2.00	0	6	21	4	6	w.	J. C. James.	
Astoria.....	Fulton.....	650	13	55.0	+ 1.4	86	6	27	24	35	3.64	+ 1.61	1.00	0	8	21	4	6	nw.	Edward V. Bohl.	
Aurora.....	Kane.....	678	33	51.6	+ 0.2	82	6	27	24	35	4.58	+ 2.00	1.54	0	6	13	10	8	sw.	W. Holden.	
Beardstown.....	Cass.....	448	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Mrs. L. M. Rice.		
Bement.....	Platt.....	700	5	57.2	—	86	5†	28	24	42	2.00	—	0.56	0	8	24	1	6	s.	N. N. Stevenson.	
Bloomington.....	McLean.....	840	21	56.5	+ 0.8	88	5	26	24	39	3.42	+ 1.70	1.70	0	8	22	1	8	nw.	Prof. H. N. Pearce.	
Cairo.....	Alexander.....	359	40	62.0	+ 2.9	86	9	38	23	28	3.64	+ 1.01	1.74	0	6	15	11	5	n.	U. S. Weather Bureau.	
Carbondale.....	Jackson.....	412	7	59.2	—	89	6	28	24	43	2.76	—	0.76	0	7	23	4	4	sw.	State Normal University.	
Carlinville.....	Macoupin.....	603	22	53.8	+ 2.3	90	6	27	24	45	2.66	+ 0.23	1.25	0	4	20	7	4	sw.	Blackburn College.	
Carlyle.....	Clinton.....	470	27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Hervey O. Jones.		
Chester.....	Randolph.....	380	20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	F. A. Gollon.		
Clinton.....	Dewitt.....	727	2	56.9	—	88	5	28	24	39	4.34	—	1.79	0	9	22	4	5	sw.	J. Frank Ziegler.	
Coatsburg.....	Adams.....	703	20	56.4	+ 3.5	85	6	29	23	34	4.47	+ 2.05	1.23	0	8	23	3	5	s.	Dr. J. P. Lambert.	
Cobden.....	Union.....	656	29	61.8	+ 1.4	90	6	31	24	35	2.28	—	1.03	0.86	0	5	16	5	10	s.	John Buck.
Dakota.....	Stephenson.....	929	7	51.8	—	84	6	26	23	35	4.91	—	2.07	0	8	17	5	9	sw.	Elmer G. Smith.	
Decatur.....	Macon.....	685	21	57.6	+ 2.0	89	5	27	24	37	3.22	+ 1.10	1.10	0	8	23	3	5	sw.	Prof. J. H. Coonradt.	
Dixon.....	Lee.....	725	22	52.6	+ 1.0	85	6	26	24	36	5.13	+ 3.08	1.67	0	7	18	6	7	sw.	H. U. Bardwell.	
Du Quoin.....	Perry.....	459	24	60.0 ^a	+ 1.8	88 ^a	5†	28 ^a	24	44 ^b	1.93	—	0.24	1.00	0	5	19	7	5	sw.	G. H. Knetzger.
Dwight.....	Livingston.....	600	19	55.2	+ 2.5	87	6	25	24	39	3.17	+ 1.27	0.98	0	8	19	4	8	sw.	Edward O. Welch.	
East St. Louis.....	St. Clair.....	481	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W. McK. Brown.		
Edwardsville.....	Madison.....	554	13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W. H. Morgan.		
Elgin.....	Kane.....	716	5	52.9	—	83	6	27	24	35	4.50	—	1.08	0	8	21	2	8	sw.	Elgin Observatory.	
Ewing.....	Franklin.....	449	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Ewing College.		
Fairview.....	Fulton.....	733	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Abram Wilson.		
Galva.....	Henry.....	842	20	54.6	+ 1.5	85	6	27	23	34	5.85	+ 3.85	1.92	0	9	23	1	7	s.	Prof. F. U. White.	
Grafton.....	Jersey.....	422	19	54.6	+ 1.5	85	6	27	23	34	5.85	+ 0.53	1.00	0	5	—	—	—	R. C. Goodrich.		
Greenville.....	Bond.....	635	34	60.5 ^a	+ 3.9	91 ^a	5†	31 ^a	27	48 ^a	1.65	—	1.15	0.90	0	5	—	—	H. W. Reidemann.		
Griggsville.....	Pike.....	650	27	55.5	+ 1.5	87	6	32	23	33	5.10	+ 2.77	1.86	0	7	22	5	4	sw.	George F. Kneeland.	
Havana.....	Mason.....	475	20	55.9	+ 1.0	88	5†	31	23	41	5.57	+ 3.60	3.00	0	8	21	2	8	nw.	L. L. Eutener.	
Henry.....	Marshall.....	500	24	54.4 ^a	+ 1.6	85	6	26 ^a	24	39 ^a	5.12	+ 3.03	1.68	0	10	22	2	7	sw.	Dr. F. A. Powell.	
Hillsboro.....	Montgomery.....	675	18	54.9	+ 1.9	90	6	30	24	38	1.75	—	1.12	0.65	0	5	21	3	7	s.	Ira L. Woodward.
Joliet.....	Will.....	609	21	53.0	+ 0.9	88	6	28	24	42	4.26	+ 2.18	1.55	0	9	23	0	8	sw.	F. M. Muhlig.	
Kishwaukee.....	Winnebago.....	730	24	52.5	+ 1.3	85	5†	23	24	42	4.65	+ 2.02	2.10	0	10	20	5	6	sw.	George Stevens.	
La Grange.....	Cook.....	657	20	53.2	+ 1.2	84	6	28	24	37	4.09	+ 2.39	1.59	0	9	18	4	9	w.	Prof. F. E. Sanford.	
La Harpe.....	Hancock.....	698	33	54.8 ^a	+ 0.4	89 ^a	5†	27 ^a	23	41 ^a	3.97	+ 1.49	1.46	0	6	25	1	5	se.	Geo. E. Campbell.	
Lanark.....	Carroll.....	883	23	51.4	+ 1.1	83	5†	22	24	41	4.35	+ 2.26	1.70	0	7	20	4	7	s.	M. N. Wertz.	
La Salle.....	Le Salle.....	536	7	54.0	+ 2.1	85	6	27	24	34	4.62	+ 2.04	1.42	0	9	19	5	7	sw.	U. S. Weather Bureau.	
Lincoln.....	Logan.....	575	24	56.4	+ 1.5	88	5†	23	24	39	3.99	+ 2.04	1.40	0	10	21	5	5	sw.	Prof. C. S. Ogglevee.	
Loami.....	Sangamon.....	624	12	—	—	—	—	—	—	—	3.68	+ 1.60	1.65	0	8	15	3	13	sw.	H. C. Foster.	
Macomb.....	McDonough.....	700	8	—	—	—	—	—	—	—	4.64	—	1.43	0	7	—	—	—	State Normal University.		
Manteno.....	Kankakee.....	711	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	J. F. Schmeltzer.		
Martinton.....	Iroquois.....	633	25	54.2	+ 1.5	86	5†	27	24	42	2.70	+ 0.50	1.00	0	7	22	1	8	sw.	Joseph H. Peltier.	
Mascoutah.....	St. Clair.....	425	22	59.6	+ 2.6	90	6	26	24	45	1.88	+ 0.76	0	7	19	7	5	nw.	George Henrich.		
Minonk.....	Woodford.....	745	19	—	—	—	—	—	—	—	—	+ 0.30	1.55	0	7	—	—	—	B. R. Morris.		
Monmouth.....	Warren.....	754	20	55.8 ^a	+ 2.1	87 ^b	6	28	23	37 ^b	5.47	+ 3.41	1.92	0	8	23	0	8	s.	Dr. J. G. Hutchison.	
Morris.....	Grundy.....	513	1	54.5	—	85	5†	28 ^a	24	41 ^a	3.00	—	0.75	0	9	20	3	8	sw.	E. C. Cryder.	
Morrison.....	Whiteside.....	685	18	53.5	+ 0.6	85	5†	25 ^a	23	43 ^a	4.23	+ 2.19	2.09	0	8	22	2	7	sw.	S. A. Maxwell.	
Morrisonville.....	Christian.....	638	13	57.8 ^a	+ 1.5	89 ^a	6	26 ^a	24	42 ^b	1.88	+ 0.41	0.75	0	8	21	5	5	s.	J. D. Lewis.	
Mount Vernon.....	Jefferson.....	511	18	57.0	- 0.9	86	5	31	24	39	0.74	+ 1.58	0.59	0	3	19	7	5	s.	Theodore P. Stelle.	
Nashville.....	Washington.....	503	12	—	—	—	—	—	—	—	2.66	+ 0.30	1.55	0	7	—	—	—	H. M. Potter.		
Oregon.....	Ogle.....	702	3	53.4	—	86	6	27	24	37	5.36	—	2.75	0	10	15	5	11	s.	Samuel Ray.	
Ottawa.....	La Salle.....	500	26	54.2	+ 1.0	86	6	28	24	37	5.26	+ 3.24	1.37	0	8	20	1	10	sw.	Miss Maude M. Harris	
Pana.....	Christian.....	692	26	59.0	+ 3.5	88	5	32	23†	37	2.84	+ 0.41	1.30	0	9	19	5	7	sw.	Dr. G. N. Gilbert.	
Paw Paw.....	Lee.....	930	—	—	—	—	—	—	—	—	5.58	—	1.64	0	8	—	—	—	A. C. McBride.		
Peoria.....	Peoria.....	609	56	54.8	+ 2.8	87	6	29	24	37	4.03	+ 1.46	1.58	0	8	17	5	9	s.	U. S. Weather Bureau.	
Pontiac.....	Livingston.....	546	10	56.4	+ 2.0	88	5	26	24	39	2.26	+ 0.50	0.87	0	10	19	3	9	sw.	George Butterworth.	
Quincy.....	Adams.....	481	6	57.2	—	87	5†</td														

TABLE 2.—*Daily precipitation for October, 1912. District No. 5, Upper Mississippi Valley*

TABLE 2.—*Daily precipitation for October, 1912. District No. 5—Continued.*

TABLE 2.—*Daily precipitation for October, 1912. District No. 5—Continued.*

Stations.	Watershed.	Day of month.																														Total					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
<i>Iowa—Continued.</i>																																					
Bonaparte.....	Des Moines.....	.43								.34	.20	1.54																						.08	3.90		
Boone 	do.....	.11						T.	.14	1.17	.02	.40	.21																					2.52			
Britt.....	Iowa.....							T.	.14	.03		1.80	.10																						2.65		
Buckingham.....	Cedar.....	.22						T.	.25		1.60		.92																						3.36		
Burlington 	Mississippi.....	.35								.61		.55	.88																						2.09		
Carroll 	Raccoon.....				T.					.05	1.35	1.64	.99																					4.37			
Cedar Rapids 	Cedar.....	.19							T.	.97	T.	.86	.10																					2.34			
Charles City.....	do.....	.08							.04	.28		1.39	.01	.01																			2.58				
Clear Lake.....	do.....									.30		1.40																							1.70		
Clinton.....	Mississippi.....	.12								.20	.73	.01	1.78							T.	.30	1.15		.03			T.	.04	4.36								
Columbus Junction.....	Iowa.....	.26								.26	.63		2.40									T.	.90	.20					T.	.47							
Davenport.....	Mississippi.....	.03	.04						.32	.52	T.	2.03									T.	T.	.87	.22	T.		T.	.01	4.04								
Decorah.....	do.....	.14							.42		.47										T.	T.										1.03					
Delaware.....	Skunk.....	.37								.28	1.15	.02	1.06																				3.42				
Des Moines.....	Des Moines.....	.22								.67	.60	.99	.38																					3.75			
Dubuque.....	Mississippi.....	.07	.05							.36	1.26	T.	.72								T.	.30	.73	.01				T.	T.		3.50						
Earlham.....	Raccoon.....	.12	.07							.39	.74	.08	1.48	.09																			3.34				
Elkader.....	Mississippi.....	.50								.15	.75		.50																					2.22			
Elma.....	Wapsipinicon.	.18								.08	.15		.75	.08	.08																		2.12				
Estherville 	Des Moines.....								T.			.30	.65																						1.20		
Fairfield.....	Skunk.....	.03							.46		T.	1.70																						.01	3.11		
Fayette.....	Mississippi.....	.24							.14	.66		.87	T.																					2.27			
Forest City 	Cedar.....								.05		.95	T.																							2.67		
Fort Dodge 	Des Moines.....	.08							.09	.50		.70	1.62	T.																			3.66				
Fort Madison.....	Mississippi.....	.26							T.	.57	T.	.90																							3.33		
Gilman.....	Iowa.....	.48								.26	1.41		.85																					4.63			
Grand Meadow.....	Mississippi.....	.38								.10	.64		.31	.36	.05																		2.19				
Grinnell.....	Iowa.....	.27								.22	1.56	T.	1.16																				4.25				
Grundy Center.....	Cedar.....	.33								.26	1.10		.75																					2.64			
Guthrie Center.....	Raccoon.....	.05	.09						T.	.20	1.63	.01	1.17	.08																		3.37					
Hampton.....	Cedar.....	.02								.08	.56		1.23	.25																			3.02				
Humboldt.....	Des Moines.....	.42							T.		.26	.96	.01	.43	.03																		2.43				
Independence.....	Wapsipinicon.																																				
Indianola.....	Des Moines.....	.10	.05							.30	1.81	.02	1.55																					5.15			
Iowa City 	Iowa.....	.15								.04	1.00		1.53	.27																				3.54			
Iowa Falls 	do.....	.04							T.		.82	T.	.34	.70																				2.61			
Jefferson.....	Raccoon.....	.06	.05							.13	.81	.04	1.33	.05																			3.07				
Keokuk.....	Mississippi.....	.15	.10							.07	.05		1.55																					6.8			
Kenoshaqua 	Des Moines.....	.22							T.	.67		1.42	.24																					4.47			
Knoxville.....	do.....	.08								.27	1.12	T.	1.85																				4.07				
Lacona.....	do.....	.20								.52	1.08	.04	1.88																				4.74				
Lansing.....	Mississippi.....	.30								.48	.03		.60																					1.53			
Le Claire 	do.....	.10	T.							.91		.02	1.03	.60																			3.91				
Marshalltown 	Iowa.....	.20							T.		.15	2.40	.92	.42	T.																		4.40				
Mason City.....	Cedar.....	.22								.07			.51																					1.95			
Monroe.....	Skunk.....	T.	.22								.31	1.18	T.	.02																			4.19				
Mount Pleasant.....	do.....	.44								.45	.25	T.	1.79																				4.34				
Muscatine 	Mississippi.....									1.00		.94	.60																				4.74				
New Hampton.....	Wapsipinicon.	.45							T.	.46		.94	.20	.04																			2.35				
Nora Springs.....	Cedar.....																																			2.21	
Northwood.....	do.....	.15								.03	.06		1.80																					2.19			
Olin.....	Wapsipinicon.									.30	1.00	.05	1.35																				3.34				
Osage.....	Cedar.....	T.									.22	.39		1.45																				4.36			
Oskaloosa.....	Des Moines.....	.06									.18																								2.87		
Ottumwa.....	do.....																																			1.62	
Pella.....	Raccoon.....	.12									.25	1.33	T.	.91	.10																		3.40				
Perry.....	do.....										.04			.95	.16																			2.10			
Pocahontas.....	do.....					</td																															

TABLE 2.—*Daily precipitation for October, 1912. District No. 5—Continued.*

* Precipitation included in that of the next measurement.

† Separate dates of falls not recorded.

¶ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures for October, 1912. District No. 5, Upper Mississippi Valley.

Date.	North Dakota.										Minnesota.																	
	Bottineau. \$§		Devils Lake.		Lisbon. \$§		Minot. \$§		Pembina. \$§		Collegeville.		Crookston. \$§		Grand Meadow.		Montevideo. \$§		Moorhead.		New Ulm. \$§		Pine River Dam.		St. Paul.		Winnibigoshish.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1	78	32	75	38	79	24	80	36	68	26	68	40	67	35	71	35	73	34	72	38	74	33	68	28	70	35	68	30
2	68	33	72	42	81	23	82	40	65	30	74	44	72	37	75	41	80	43	76	44	79	34	74	34	77	45	75	44
3	73	32	73	39	78	40	76	39	60	34	69	46	70	43	73	52	75	38	74	41	75	47	67	46	72	52	72	42
4	78	38	78	44	84	35	71	44	52	32	78	48	75	43	76	43	84	50	80	40	78	45	77	29	77	43	76	44
5	54	46	51	40	84	35	53	43	54	33	83	58	60	45	82	50	90	62	66	47	86	50	80	50	85	56	78	52
6	43	34	41	30	62	36	45	34	52	36	78	40	45	40	71	45	63	57	47	35	53	52	73	44	73	44	72	42
7	59	23	59	30	60	30	64	30	49	34	55	31	58	31	57	31	68	32	60	31	57	33	55	32	64	38	68	42
8	64	27	65	37	71	32	67	32	47	32	58	43	62	35	54	37	69	45	66	38	64	35	62	44	58	39	61	31
9	34	33	44	30	70	31	35	34	48	35	60	43	50	40	48	44	50	39	58	45	61	46	55	44	61	46	55	44
10	36	30	36	28	70	31	39	31	46	32	61	45	40	35	56	37	57	43	42	36	65	35	54	35	60	48	52	42
11	55	28	54	30	60	31	58	27	52	34	55	38	44	28	49	44	40	38	45	32	45	38	60	40	51	38	46	35
12	57	28	54	33	60	34	54	33	50	36	55	33	58	32	50	31	57	34	59	33	55	30	56	34	54	30	54	30
13	67	23	65	31	68	30	70	38	55	33	59	33	64	31	59	33	66	32	66	30	60	34	60	40	58	36	61	32
14	60	31	58	34	68	30	64	37	52	36	64	40	56	38	68	35	71	39	62	34	66	42	62	42	67	44	55	28
15	71	31	68	33	70	21	75	30	54	34	58	40	59	29	62	30	65	26	64	27	63	31	58	23	59	37	54	27
16	75	31	74	42	76	24	76	40	56	32	73	38	70	40	69	37	80	45	76	42	74	33	70	36	74	39	71	26
17	69	34	70	40	80	33	74	43	54	34	72	45	69	37	67	44	81	39	77	33	70	42	72	31	70	49	72	38
18	42	42	51	36	67	33	45	37	56	32	64	42	47	40	63	45	55	39	57	39	55	43	62	22	59	45	65	40
19	47	21	47	27	56	22	51	22	58	34	52	32	50	30	64	29	56	29	52	28	57	32	51	34	52	39	52	32
20	51	24	55	36	60	24	50	23	49	36	59	45	56	30	52	37	67	45	58	38	57	33	51	32	54	46	52	34
21	38	28	39	25	60	24	43	34	50	34	55	38	42	38	51	38	47	37	44	32	53	43	49	30	50	38	51	37
22	51	20	48	25	50	14	55	23	48	36	47	33	43	24	47	42	52	25	48	21	50	33	50	22	48	34	49	32
23	59	24	60	37	67	14	66	30	54	33	53	30	61	25	54	21	63	33	64	32	52	27	53	17	52	27	54	25
24	55	28	65	35	67	34	58	34	52	36	58	40	50	29	63	38	60	33	57	29	59	43	59	36	60	38	60	32
25	60	22	64	31	65	20	66	26	51	38	60	36	59	27	64	30	64	25	64	22	63	30	58	17	60	36	60	24
Mns..	54.5	29.3	54.8	31.9	66.0	26.9	57.9*	32.2	50.4	32.6	61.3	38.7	54.5	33.6	61.4	36.6	63.4	37.1	58.9	33.1	61.2	36.2	59.0	33.1	61.2	39.6	59.2	34.2

Date.	Wisconsin.										Iowa.													
	Eau Claire.	Grantsburg.	Hancock.	La Crosse.	Madison.	Prentice.	Wausau.	Algona.	Cedar Rapids. \$§	Charles City.	Davenport.	Des Moines.	Dubuque.	Keokuk.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1	69	32	70	26	68	34	69	37	67	43	65	26	65	30	70	37	70	36	70	34	69	41	69	40
2	74	39	77	42	72	44	75	42	69	45	72	40	73	41	75	45	76	38	76	42	75	49	73	46
3	71	56	73	45	72	52	72	48	68	55	72	53	70	54	72	48	71	45	71	47	74	52	73	55
4	76	39	73	44	75	45	77	42	72	50	73	33	74	39	76	42	73	43	75	40	77	46	77	46
5	83	45	84	57	77	50	83	52	79	47	81	51	80	48	84	53	85	44	83	52	85	55	81	51
6	76	49	76	48	79	53	79	49	77	48	81	45	78	56	75	47	83	51	75	46	86	50	79	48
7	56	39	57	35	62	44	58	39	56	44	70	37	57	37	59	51	56	36	61	43	59	41	58	44
8	50	35	56	35	51	37	52	38	49	41	50	31	53	33	58	45	53	41	54	44	52	48	51	44
9	61	45	59	40	53	45	56	47	55	47	52	43	51	44	60	48	59	47	61	49	60	50	59	49
10	58	45	57	38	53	45	53	42	52	48	52	41	53	44	61	46	51	51	58	52	53	50	62	54
11	62	45	53	38	52	47	53	46	64	49	50	37	53	44	55	44	65	51	56	41	68	50	65	49
12	57	36	57	31	58	40	61	39	57	42	52	34	53	37	58	33	59	40	58	34	61	38	59	41
13	61	35	60	32	60	35	62	37	58	42	57	33	57	34	59	34	59	39	59	34	61	39	59	40
14	60	40	67	41	61	46	68	40	65	40	63	35	62	40	70	38	68	38	67	38	68	42	69	41
15	60	30	60	25	61	32	60	35	56	42	63	31	62	33	62	33	62	40	60	32	63	45	67	44
16	72	33	73	41	67	37	71	37	65	39	65	33	71	48	71	40	72	36	71	41	68	42	73	40
17	72	43	76	45	70	37	74	48	68	43	68	42	70	42	73	40	70	44	72	47	73	49	74	54
18	65	48	60	40	71	38	69	46	69	46	68	43	68	48	63	47	69	47	66	43	72	49	69	47
19	54	41	54	35	55	37	56	39	55	40	62	35	60	38	55	39	55							

TABLE 3.—*Maximum and minimum temperatures at selected stations for October, 1912: District No. 5—Continued.*

Date.	Hannibal, Mo.		Laporte, Ind.		Illinois.																	
					Cairo.		Mascoutah.		La Salle.		Galva.		Mount Vernon. §§		Peoria.		Spring- field.		Winnebago.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.	69	35	65	35	88	46	74	34	68	39	71	37	70	36	69	37	67	42	70	36		
2.	75	37	70	36	75	47	77	35	73	42	73	42	71	37	74	38	72	43	73	39		
3.	76	48	68	45	79	55	83	45	67	52	71	54	79	41	70	50	75	54	69	54		
4.	78	42	75	42	82	56	85	45	76	44	76	48	80	50	78	41	76	49	78	44		
5.	88	56	79	43	85	60	88	51	85	52	84	55	86	52	86	51	85	55	83	46		
6.	88	59	82	60	85	60	90	51	85	54	85	59	71	54	87	57	86	58	85	60		
7.	61	47	75	40	72	56	82	54	61	44	70	41	69	50	63	43	63	48	74	43		
8.	63	49	55	34	79	51	73	45	56	44	52	43	67	46	56	42	60	49	50	37		
9.	86	59	73	50	86	67	88	59	74	49	77	50	82	50	80	55	84	59	61	47		
10.	68	58	65	55	82	65	84	65	61	54	60	52	83	63	65	55	70	61	57	49		
11.	74	51	71	56	82	67	86	61	67	54	65	53	84	60	69	55	82	59	63	50		
12.	63	44	72	42	70	53	79	49	60	46	65	43	67	58	61	42	62	47	63	75		
13.	66	39	60	37	63	50	73	38	63	42	64	38	67	37	64	40	65	44	60	37		
14.	70	35	63	32	69	47	72	34	66	35	68	37	67	39	66	34	66	40	66	36		
15.	72	42	58	43	74	47	80	36	63	43	56	42	75	38	66	39	69	47	61	38		
16.	73	44	64	41	71	50	75	36	68	34	69	38	71	39	70	40	70	40	69	36		
17.	74	50	72	38	69	57	73	41	71	47	70	40	66	43	72	47	71	50	71	46		
18.	76	54	69	35	69	64	77	59	73	49	72	54	71	51	73	53	70	51	70	52		
19.	62	41	55	32	65	50	73	41	57	40	59	36	63	44	59	39	58	44	59	35		
20.	70	43	60	45	70	44	72	35	65	38	65	39	63	37	66	39	65	40	61	34		
21.	68	44	72	40	78	56	81	40	68	45	63	45	74	46	71	46	75	46	64	42		
22.	51	36	63	45	66	43	70	46	50	38	53	41	54	49	53	39	56	41	52	36		
23.	56	30	48	36	57	35	62	31	50	31	53	27	55	32	52	30	53	33	50	26		
24.	63	32	52	31	58	39	65	26	59	27	60	32	57	31	60	29	57	33	58	26		
25.	67	42	58	33	64	41	68	34	64	41	67	41	66	32	67	39	65	44	61	38		
26.	70	39	61	34	70	45	73	35	65	35	66	40	70	33	65	36	64	43	66	36		
27.	77	47	72	36	72	48	80	35	74	45	74	45	75	36	74	45	74	45	69	44		
28.	76	53	69	41	72	48	78	42	74	45	74	49	73	43	75	50	73	48	71	41		
29.	66	43	65	47	75	55	78	52	64	43	67	44	79	43	65	44	67	46	62	42		
30.	51	33	58	37	61	50	68	36	52	35	49	42	57	45	56	31	55	38	51	29		
31.	45	33	41	35	75	47	54	45	42	38	42	38	68	44	46	39	48	38	42	37		
Means....	69.1	44.0	64.8	40.5	72.4	51.6	76.2	43.1	65.2	42.7	65.8	43.4	70.2	43.8	67.0	42.7	67.8	46.4	64.2	40.7		

*, b, o, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.